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COMPARISION OF SPERMATOZOA MEMBRANE FATTY ACIDS ISOLATED FROM BLUE FOX AND SILVER FOX WITH REFERENCE TO CRYOGENIC BUFFER

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In Scandinavian countries, the blue fox (*Alopex lagopus*) is threatened with extinction. Consequently, captive-breeding programs are underway with the goal of re-introducing the blue fox into the Scandinavian countryside, utilizing artificial reproduction technologies. Cryogenic protocols have been developed for the storage of silver fox (*Vulpes vulpes)* spermatozoa. However, these same protocols and modifications of these protocols have failed to preserve spermatozoa collected from blue fox (*Alopex lagopus*). Because the ability to cryogenically freeze spermatozoa have been linked to membrane composition, the plasma membrane composition of blue fox and silver fox spermatozoa was studied. Silver fox spermatozoa membranes have significantly higher levels of docosapentaenoic acid (22:5) as compared to blue fox spermatozoa. Blue fox spermatozoa membranes have significantly higher levels of stearic acid (18:0) as compared to silver fox spermatozoa. Since silver fox spermatozoa can be cryogenically frozen in a tris-fructose-citrate buffer while artificial insemination protocols using non-frozen spermatozoa utilize an EDTA buffer, the effects of storage buffer on spermatozoa membrane fatty acid composition was studied. Silver fox spermatozoa was unaffected by the storage buffer. However, membrane fatty acid composition of blue fox spermatozoa was altered by the tris-fructose-citrate buffer; palmitic acid (16:0) levels increased as the levels of several longer-chain fatty acids decreased. The inclusion of egg yolk promoted increased levels of linoleic acid (18; 2, n-6) and decreased levels of DPA.